

ABSTRACT

PROCESS AND MACHINE FOR UNITING ROTATABLE MACHINE COMPONENTS

5

A hub (2) includes a spindle (14) which projects through a housing (4) and rotates relative to the housing (4) on a bearing (6) that is located between the spindle (14) and the housing (4). The bearing (6) has two sets of raceways (28,40) that are oblique to the axis x, and 10 in addition rolling elements (36) arranged in two rows between the sets of raceways (28,40). The inner raceways (28) that fit around the spindle (14) and have back faces (32), with the back face (32) for one of the races (26) being against a shoulder (18) from which the spindle (14) projects. Initially, the end of the spindle (14) projects straight 15 beyond the back face (32) of the outer race - indeed, so that the races (26) can be installed over the spindle (14). But once the housing (4) and races (26) are in a position around the spindle (14), the projecting end portion of the spindle (14) is deformed radially and axially in a rotary forming operation such that it transforms into a formed end (20) 20 that lies behind back face (32) of the race (26). With the two races (26) between the formed end (20) and the shoulder (18). During the rotary forming operation the hub (26) rotates, and the end of its spindle (14) is forced against a rotating forming tool and the force is monitored. The housing (4) is restrained and the torque transferred from the 25 rotating hub (2) to the housing (4) is monitored.